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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,434

05/02/2005

Akira Kawabe

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EXAMINER

LAMB, CHRISTOPHER RAY

ART UNIT

PAPER NUMBER

2627

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/533,434	<b>Applicant(s)</b> KAWABE ET AL.	
	<b>Examiner</b> Christopher R. Lamb	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 1<sup>st</sup>, 2007 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1:

The subject matter that is not distinctly claimed is "even when a frequency error between a frequency of the reproduced data and a frequency of a sampling clock for sampling the reproduced data is great."

It is unclear what it means for the frequency error to be "great." The specification discloses an example of a "large" frequency error in the "problem to be solved" section on page 4 of the originally filed specification (this is illustrated in Fig. 27b).

However, this is just an example of a "large" frequency error and not a complete definition: it does not show what range of errors would constitute a "large" error. Furthermore, it is not clear if this "large" frequency error is the same as the "great" frequency error of the claim.

Therefore it is unclear what condition is being claimed by this claim element.

Regarding claims 2-36:

They are dependent on claim 1 and therefore contain the same language.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamada et al. (US 2002/0181360).

Regarding claim 1:

Hamada discloses:

A phase error detecting circuit for use in extracting, based on reproduced data that has been reproduced from a record reproducing apparatus and quantized, a synchronous clock which is synchronized with the reproduced data, the phase error detecting circuit comprising:

a cross detector for receiving the reproduced data and a specified reference value and detecting a cross timing at which the reproduced data crosses the reference value (paragraphs 74-88);

a phase error calculator for receiving the reproduced data and a cross timing signal from the cross detector and calculating a difference between the value of the reproduced data and a zero value at the cross timing as phase error data (paragraph 93-102: in this case the "zero value" is the moving average value, which is also referred to as the center value elsewhere); and

a cross reference value generator for receiving the phase error data from the phase error calculator and updating the reference value of the cross detector based on the phase error data (paragraph 81; the center value used by the edge detection circuits may be based on the offset value detected) so that a zero cross point where the reproduced data crosses a zero value is detected with accuracy even when a frequency error between a frequency of the reproduced data and a frequency of a sampling clock for sampling the reproduced data is great (paragraphs 72-82: it detects the point where it crosses the "zero value," or center value; paragraph 51: the phase error is used to adjust the clock through the VCO, and therefore when the error between the two frequencies is great the clock is adjusted to compensate).

Regarding claim 2:

In Hamada the cross reference value generator updates, every time the phase error calculator calculates the phase error data, the calculated latest phase error data as a reference value for the cross detector (paragraph 81).

Regarding claim 3:

In Hamada the cross detector has: a rising cross detector for detecting a rising cross timing at which the reproduced data crosses the reference value upon rising thereof; and a falling cross detector for detecting a falling cross timing at which the reproduced data crosses the reference value upon falling thereof (paragraphs 73-88).

Regarding claim 4:

In Hamada the phase error calculator calculates, upon receipt of a rising cross timing signal from the rising cross detector, a difference between the value of the reproduced data and the reference value at the rising cross timing as rising phase error data and calculates, upon receipt of a falling cross timing signal from the falling cross detector, a difference between the value of the reproduced data and the reference value at the falling cross timing as falling phase error data (paragraph 51-52).

Regarding claim 5:

In Hamada the cross reference value generator receives the rising edge phase error data and the falling edge phase error data each from the phase error calculator and outputs the rising phase error data as a rising reference value to the rising cross detector, while outputting the falling phase error data as a falling reference value to the falling cross detector (paragraph 80: the cross detectors may use the offset values from the second phase error calculating circuit; paragraphs 151-152: the second phase error calculating circuits may use separate offset values for the rising and falling (leading and trailing) detectors).

Regarding claim 18:

Hamada discloses:

A synchronous clock extracting circuit comprising (Fig. 1):

a phase error detecting circuit as recited in claim 1 (Fig. 1: 44, 54); and

a voltage control oscillator for receiving the phase error data outputted from the phase error detecting circuit and changing a frequency of a synchronous clock in accordance with a phase error shown by the phase error data (Fig. 1: 46, 56).

### ***Response to Arguments***

6. Applicant's arguments filed October 1<sup>st</sup>, 2007 have been fully considered but they are not persuasive.

Applicant argues that Hamada does not disclose "a cross reference value generator for receiving the phase error data from the phase error calculator and updating the reference value of the cross detector based on the phase error data so that a zero cross point where the reproduced data crosses a zero value is detected with accuracy even when a frequency error between a frequency of the reproduced data and a frequency of a sampling clock for sampling the reproduced data is great."

Applicant argues that Hamada is directed toward obtaining the correct phase error when the overall level of the reproduction signal has changed, as opposed to applicant's invention, which is directed toward solving "the problem of erroneously detecting a zero cross point when a frequency error between the reproduced data and the sampling clock is greater [sic]."

This argument is not persuasive.

Applicant is correct in that Hamada is concerned with circumstances where the overall level of the reproduction signal has changed. However, Hamada calculates an offset to determine the true level of the reproduced signal: that is, the level without the error caused by the offset. When the signal crosses the center value used by Hamada, this is the real "zero cross point" of the reproduced signal without the offset error, and therefore Hamada still detects "a zero cross point where the reproduced data crosses a zero value with accuracy."

The second part of applicant's amendment requires that the zero cross point be detected "even when a frequency error between a frequency of the reproduced data and a frequency of the sampling clock for sampling the reproduced data is great. Hamada discloses a voltage controller oscillator that adjusts the frequency of the clock (paragraph 51) and therefore Hamada's apparatus is capable of adjusting for frequency errors. The claim does not further define what it means for the frequency error to be "great," and neither does the specification, so the errors Hamada is capable of compensating for can be reasonably interpreted as meeting the language of the claim.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (571) 272-5264. The examiner can normally be reached on 9:00 AM to 6:30 PM Monday to Friday.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 12/13/07

/William Korzuch/  
SPE, Art Unit 2627